

YOR920000831US1  
Response dated 05/25/2007

00280683aa  
Reply to office action mailed 05/23/2007

The following is a complete listing of all claims in the application, with an indication of the status of each:

**Listing of claims:**

- 1           1-3. (canceled)
- 1           4. (previously presented) A computer implemented method of resource  
2           allocation to yield a benefit comprising the steps of:  
3                 associating each customer's demand with a benefit gained;  
4                 finding a time-varying allocation of resources that would yield a  
5           benefit which is based on the benefit gained associated with one or more  
6           customer's demands;  
7                 implementing the time-varying allocation of resources amongst one or  
8           more customers to yield said benefit;  
9                 discounting future benefits; and  
10                finding optimal allocations of resources from current time through  
11           current time plus lookahead based on discounted benefit and forecast demand,  
12           wherein the step of discounting future benefits is based on a future  
13           discounting algorithm,  
14                wherein the future discounting algorithm is a deterministic algorithm  
15           that achieves a competitive ratio of  $(1 + 1/L) (L + 1)^{1/L}$ , where L is a  
16           lookahead factor which models some amount of future demand known to a  
17           provider of the resource.
- 1           5. (previously presented) A computer implemented method of resource  
2           allocation to yield a benefit comprising the steps of:  
3                 associating each customer's demand with a benefit gained;

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4           finding a time-varying allocation of resources that would yield a  
5           benefit which is based on the benefit gained associated with one or more  
6           customer's demands;  
7           implementing the time-varying allocation of resources amongst one or  
8           more customers to yield said benefit;  
9           discounting future benefits; and  
10          finding optimal allocations of resources from current time through  
11          current time plus lookahead based on discounted benefit and forecast demand,  
12          wherein the step of discounting future benefits is based on a future  
13          discounting algorithm,  
14          wherein the algorithm is an intermittent reset algorithm that achieves a  
15          competitive ratio of  $1 + 4/(L-7)$ , where  $L$  is a lookahead factor which models  
16          some amount of future demand known to a provider of the resource.

1          6-14. (canceled)

1          15. (previously presented) A computer implemented method of resource  
2          allocation to yield a benefit comprising the steps of:  
3                  modeling a resource allocation problem mathematically;  
4                  in the model obtained from said modeling step, dividing time into  
5                  intervals of fixed length based on the assumption that demand is uniformly  
6                  spread throughout each such interval; and  
7                  associating each customer's demand with a benefit gained; and  
8                  finding a time-varying allocation of resources that would maximize a  
9                  benefit which is based on the benefit gained associated with one or more  
10                 customer's demands;  
11                 implementing the time-varying allocation of resources amongst one or  
12                 more customers to maximize said benefit;

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13               discounting future benefits; and  
14               finding optimal allocations of resources from current time through  
15               current time plus lookahead based on discounted benefit and forecast demand,  
16               wherein the step of discounting future benefits is based on a future  
17               discounting algorithm,  
18               wherein the future discounting algorithm is a deterministic algorithm  
19               that achieves a competitive ratio of  $(1 + 1/L) (L + 1)^{1/L}$ , where  $L$  is a  
20               lookahead factor which models some amount of future demand known to a  
21               provider of the resource.

1               16. (previously presented) A computer implemented method of resource  
2               allocation to yield a benefit comprising the steps of:  
3               modeling a resource allocation problem mathematically;  
4               in the model obtained from said modeling step, dividing time into  
5               intervals of fixed length based on the assumption that demand is uniformly  
6               spread throughout each such interval; and  
7               associating each customer's demand with a benefit gained; and  
8               finding a time-varying allocation of resources that would maximize a  
9               benefit which is based on the benefit gained associated with one or more  
10              customer's demands; and  
11              implementing the time-varying allocation of resources amongst one or  
12              more customers to maximize said benefit,  
13              wherein the algorithm is an intermittent reset algorithm that achieves a  
14              competitive ratio of  $1 + 4/(L-7)$ , where  $L$  is a lookahead factor which models  
15              some amount of future demand known to a provider of the resource.

1               17-24. (canceled)

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25. (previously presented) A method for server allocation in a Web server  
“farm” based on limited information regarding future loads to achieve close to  
greatest possible revenue based on an assumption that revenue is proportional  
to the utilization of servers and differentiated by customer class comprising  
the steps of:

modeling the server allocation problem mathematically;

in the model, dividing time into intervals of fixed length based on the  
assumption that each site’s demand is uniformly spread throughout each such  
interval;

maintaining server allocations fixed for the duration of an interval,  
servers being reallocated only at the beginning of an interval, and a  
reallocated server being unavailable for the length of the interval during  
which it is reallocated providing time to “scrub” the old site (customer data)  
to which the server was allocated, to reboot the server and to load the new site  
to which the server has been allocated, each server having a rate of requests it  
can server in a time interval and customers share servers only in the sense of  
using the same servers at different times, but do not use the same servers at  
the same time; and

associating each customer’s demand with a benefit gained by the  
service provider in case a unit demand is satisfied and finding a time-varying  
server allocation that would maximize benefit gained by satisfying sites’  
demand,

wherein the future discounting algorithm is a deterministic algorithm  
that achieves a competitive ratio of  $(1 + 1/L) (L + 1)^{1/L}$ , where  $L$  is a  
lookahead factor which models some amount of future demand known to a  
provider of the resource.

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1        26. (previously presented) A method for server allocation in a Web server  
2        “farm” based on limited information regarding future loads to achieve close to  
3        greatest possible revenue based on an assumption that revenue is proportional  
4        to the utilization of servers and differentiated by customer class comprising  
5        the steps of:

6               modeling the server allocation problem mathematically;

7               in the model, dividing time into intervals of fixed length based on the  
8        assumption that each site’s demand is uniformly spread throughout each such  
9        interval;

10              maintaining server allocations fixed for the duration of an interval,  
11        servers being reallocated only at the beginning of an interval, and a  
12        reallocated server being unavailable for the length of the interval during  
13        which it is reallocated providing time to “scrub” the old site (customer data)  
14        to which the server was allocated, to reboot the server and to load the new site  
15        to which the server has been allocated, each server having a rate of requests it  
16        can server in a time interval and customers share servers only in the sense of  
17        using the same servers at different times, but do not use the same servers at  
18        the same time; and

19              associating each customer’s demand with a benefit gained by the  
20        service provider in case a unit demand is satisfied and finding a time-varying  
21        server allocation that would maximize benefit gained by satisfying sites’  
22        demand,

23              wherein the algorithm is an intermittent reset algorithm that achieves a  
24        competitive ratio of  $1 + 4/(L-7)$ , where  $L$  is a lookahead factor which models  
25        some amount of future demand known to a provider of the resource.

1        27. (canceled)